



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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May 12, 2004

Mr. David Powers
12645 Mount Hermon Road
Ashland, Virginia 23005

RE: Written Comments on the Mechumps Creek TMDL

Dear Mr. Powers:

Thank you very much for your written comments on the Mechumps Creek TMDL as a watershed resident. Responses to your comments are italicized below each comment.

1. Clearly, there is a minimal amount of "real" data to base this assessment on and a shortage of funding at the state level. However, I think that given the available information, this study does a reasonable job of drawing conclusions. The one conclusion which is not mentioned, is the desperate need for additional data, upon which to draw future conclusions. While I'm not in a position to offer funding for additional BST monitoring stations, but it does seem that coordination with other stakeholders (e.g. Ashland, Hanover Co., Randolph-Macon, etc.) might result in some cost sharing on providing additional monitoring stations or manpower. Obviously, the Town of Ashland and Hanover County have a direct stake in what implementation programs may be created in the future. Having accurate (as much as possible) data will help ensure that their future efforts to reduce impairments will be cost effective, and would most likely reduce overall expenditures in the long run. The \$250/month/BST station is not a great deal of money if distributed among the stakeholders instead of coming from one department of the state government. This should to be assessed prior to mandating an implementation practice based on minimal data.

Response: Thank you. One outcome we hope to occur through this process is a continued coordination and communication between stakeholders in the watershed. As you are aware, the Mechumps watershed has had several groups and individuals involved in conservation efforts to improve water quality. Hopefully, additional partnerships may be generated as a result of the TMDL and these community efforts. We look forward to participating in the process and working with the local community to achieve common objectives.

2. The draft report leans toward a suggestion that Pets (specifically dogs) are responsible for the largest percentage of fecal bacteria throughout the watershed due to higher concentrations in fecal deposits, etc. However, there is no mention of the Hanover County Animal Shelter located upstream of the sampling point as a source of this, or how this animal shelter's practices may influence bacteria concentrations in the Mechumps Watershed.

Response: Thank you for informing us of the animal shelter's presence. The animal shelter will be an important consideration in the next step of the process, which will be the development of the implementation plan. We will be sure to request their staff's involvement. Without more specific data, it would not be prudent to speculate on the potential impact of the shelter at this time.

3. Given the small amount of data that exists to make these determinations, this report needs to emphasize the relative errors associated with each of the assumptions as well as the cumulative error associated with the process. While the report establishes the best available approach at this point (which I believe is a reasonable statement), the confidence in this approach should be expressed to determine what the ultimate mandates will be. That is, if the confidence is quite low, it may not make sense to establish costly and/or politically unpopular requirements on the residents of the watershed.

Response: Because of the inherent uncertainties in the TMDL model, it is not possible to know explicitly all steps that will be needed to achieve the water quality standard in the preliminary TMDL development phase. Nor is it possible during the TMDL development phase to know the severity of the steps or the costs necessary to achieve the water quality standards. The TMDL development phase, which will be complete with acceptance of the TMDL development report by USEPA and adoption by the SWCB, estimates the sources of contamination, and the reductions in bacterial loads possibly needed to reach the water quality standard. The next phase, the Implementation Plan phase, will describe the proposed methods of load reduction in the watershed, including the Best Management Practices (BMPs) proposed. Stakeholders will have direct input into creating the Implementation plan, and it too will go through public comment. Next, the actual implementation phase is done in steps first involving those BMPs anticipated to achieve the greatest reductions in loads at the least cost, so that costs and severity of load reductions are minimized to the greatest extent possible for the localities who bear the costs. During and after the first steps of BMP implementation, DEQ will monitor bacteria levels in the watershed to gauge the extent to which the water quality standard has been achieved. The DEQ and stakeholders will assess the need for further reductions at that time.

4. The TMDL needs to address the implementation recommendations more explicitly. Determining the make up of the impairment is only half of the battle. This report proposes to place the burden of implementation on a different department of state government, which will not have the benefit of understanding the process that was performed to get to that point. I didn't realize that EPA would accept a TMDL without a defined implementation approach.

Response: The TMDL process is set up in three stages. The first is the TMDL development, in which a source identification study is conducted and loading allocations for the pollutant of concern is developed. The next stage will be the development of the implementation plan, which will prioritize which conservation efforts and education programs will be the most effective for reducing bacteria to the stream. DEQ will work closely with the Department of Conservation & Recreation to ensure there is consistency in the phases of TMDL implementation.

5. The report focuses on the sources of the impairment. I wonder if there is an opportunity to look at the receiving water's ability to assimilate or address the impairment (i.e. is the impairment due, in part, to degradation of the receiving body)? I don't have an answer to this, just curious.

Response: The TMDL report focuses specifically on the sources of the impairment, determining the E. coli loading the stream can receive and meet water quality standards, and the necessary reductions to meet those standards. Assessing the waterbody's ability to assimilate or address the impairment was inherent in the TMDL methodology.

For those who are having trouble falling asleep, I am highlighting more specific issues with the draft approach below:

- A. The report should avoid using broad statements such as: "The results indicate that the majority of bacteria are coming from anthropogenic sources" (exec. summary) when 88% of the sources are pet, livestock and wildlife, where the ability to differentiate is quite low.

Response: DEQ defines anthropogenic as those which are caused by human and human controlled activities. We have classified three BST categories of livestock, pets, and human as anthropogenic, for a total of 78%. The remaining total of 22% falls into the wildlife category, which is viewed as natural background contribution.

- B. The executive summary refers to the four categories (human, pets, livestock and wildlife) as non-point sources. Just because we don't know where the point source is, doesn't make it a non-point source. This again is a lack of solid data.

Response: The TMDL study addresses both point-source and non-point sources of bacteria to Mechumps Creek. Point sources are human influenced contributors. An inventory of DEQ permits reveals four minor industrial point sources and one Municipal Separate Storm Sewer System (MS4) in the watershed. The four source categories for non-point contributions used in this study were specified in the executive summary because they were calculated separately to determine a total load allocation for non-point sources. This does not imply that point sources were not considered.

- C. The conclusion that a 100% reduction in human, pet and livestock contributions would still not allow the streams to be de-listed, suggest that we either have too high a margin of safety or are using data that is not terribly relevant (or complete).

Response: The implicit Margin of Safety (MOS) accounts for uncertainties that are not accounted for in the watershed characterization and TMDL development. While this sets a high goal to aim for, it also makes the TMDL conservative. Thus, it may be possible to meet water quality standards before reaching the stated reduction goals in the report. This is a far better alternative than setting the bar low and revisiting the same issue at a later date.

- D. It might be worth re-visiting the State's Water Quality Standards if they are setting standards that are unobtainable. The state followed EPA recommendations to enact more stringent fecal standards, that now can't be met. This seems to suggest that the new standards might not be that useful.

Response: We do not really know whether the new E. coli standards will be unattainable in non-tidal bacterially impaired segments. The load duration TMDL method may not accurately predict difficulty in standards attainment. Follow-up monitoring after TMDL implementation is a much more precise assessment of standards attainment. E. coli data assessment after implementation will provide more direction on future decisions regarding water quality standards.

- E. "The Hanover County office of the VDH reported no known straight pipes in the Mechumps Creek Watershed." This is the only statement in this report that considers the possibility of Municipal Separate Sewers failing. Given the age and knowledge of the systems in portions of the watershed, I don't think that this is sufficient to ignore that the possibility may exist.

Response: Your comment mentions two separate municipal water quality problems. Straight pipes are illicit small point source discharges, of which the VDH is unaware in Mechumps basin. The Ashland

Small MS4 does discharge to the headwaters of Mechumps and Slayden Creeks during storm events. The Ashland MS4 was given a Waste Load Allocation (WLA) in the TMDL development. We do not anticipate failure of the MS4, however the WLA should cover most failure situations. We wish to discuss with you at your convenience the nature of possible MS4 failures in the Ashland MS4.

- F. Using statewide surveys to assess failing septic systems is a good starting point, but it is not conclusive nor does it represent the possibility of failing piped systems or I&I issues.

Response: You are correct. The estimates used for failed septic systems are based upon the best information we have available at this time. This estimate is similar to those used in other TMDL studies throughout Virginia. At this time period, we are not aware of failed pipe systems or Inflow & Infiltration (I&I) issues.

- G. Assessments of dogs in the County appears to be based on a national survey by the American Pet Products Manufacturer's Association. No mention was given to Hanover pet registration records. It would be interesting to know how these number relate to one another.

Response: While local data through pet registration records would be preferred, obtaining this information tends to be difficult. The national pet information used for this study is typical of the data used in other TMDLs throughout Virginia.

- H. The entire statement about the estimations of wildlife suggest a high degree of uncertainty. The assumptions seem reasonable enough, but given the end result of the analysis, some error in these estimates is undoubtedly occurring.

Response: As with most estimates, some error is likely. DEQ attempted to minimize this by discussing these estimates with VA Dept. of Game & Inland Fisheries personnel, who determined the numbers fall within estimates they use for wildlife populations.

- I. The statement that "it has been determined that the load-duration method of calculating a TMDL produces a result only slightly more conservative than if the TMDL had been determined through computer modeling" seems broad. I would be interested in: how this was determined, what accuracy/reliability is the computer model to which it is compared (calibration, verification, etc.), etc. I agree that the load duration is a reasonable approach, although it appears to be more than "slightly" conservative. My concern is how conservative are the computer models that we're comparing this too. Most of the computer models (e.g. HSPF, SWMM, etc.) are going to be highly suspect and generally err on the side of being too conservative due to the same types of assumptions that were made in this study.

Response: The LDA approach is simpler and faster, and needs less data input. It produces more conservative allocations and reductions compared to modeling because the reductions are based on the single highest exceedance. LDA does not consider pollutant transport mechanisms. Land use, specific sources, hydrology, topography, or future growth are considered only as supporting background information, not to set source-specific reductions. The HSPF or other models are process-oriented and consider all the possible input and transport factors, and are thus data intensive and time consuming. Model output can be considered more representative of spatial watershed hydrology, in spite of their use of empirical constants and inherent assumptions. Thus, considering limited input data, cost, and consent decree time limitation, LDA offers an alternate approach.

It is important to note that DEQ has considered the concern of "over-implementation" in its TMDL process. To address the concern of overly conservative reduction requirements, DEQ, in cooperation with DCR and DMME, has developed a staged implementation approach which allows for periodic water

quality assessments to determine the success of implementation strategies. The target of TMDL implementation is a water quality goal, i.e. support of a designated use, and once that goal has been attained, no additional reductions or corrective actions are required."

J. The results of this analysis suggest a reduction of 99% of all Pet, Human and Livestock contributions, "which may be attainable." I don't see how this is a realistic conclusion.

The 99% reductions represent a goal of reducing as much of the anthropogenic bacterial loads from pets, human, and livestock as is feasible. See the response to comment C above regarding the establishment of the Margin of Safety.

Please let me know if you have any questions regarding the information provided. I would be happy to make myself available to further discuss the Mechumps Creek TMDL.

Sincerely,

R. Christopher French
TMDL Coordinator
Piedmont Regional Office, DEQ